

REMARKS

As a preliminary matter, applicants appreciate the allowance of claims 5-7.

Claims 1-4 stand rejected under § 102 on the basis of Yoshida et al. '228. Applicants respectfully traverse this rejection because Yoshida et al. do not disclose (or suggest) contact between a substratum and a side surface of a magnetoresistive film, as in the present invention.

Claim 1 defines forming the insulating base layer over the surface of the substratum. The insulating base layer contacts at least partly the side surface of the magnetoresistive film. Claim 1 also defines effecting an etching process while keeping the insulating base layer contacting the side surface of the magnetoresistive film. According to the method defined in claim 1, the insulating base layer serves to cover over the side surface of the magnetoresistive film standing on the surface of the substratum.

With the present invention, exposure of the side surface of the magnetoresistive film can be prevented on the surface of the substratum. When the etching process is effected on the substratum in this condition, chemical reaction between the magnetoresistive film and the etching gas employed in the etching process can reliably be avoided. It is thus possible to reliably prevent adhesion or deposition of a metallic compound resulting from oxidation of atoms included in the magnetoresistive film, a metallic compound resulting from a chemical reaction of atoms in the magnetoresistive film attacked by the etching gas, and the like. Such avoidance of generation of an impurity or unexpected substance on the magnetoresistive film

leads to establishment of a near ideal characteristic in the magnetoresistive effect of the magnetoresistive head element.

In the rejection of Claim 1, the Examiner focuses on the description of Yoshida et al., paragraphs [0019] and [0021]. The Examiner may have referred to the machine translation from Japanese to English provided by the website of the Japan Patent Office. However, the English translation of the description does not precisely reflect the content of the Japanese description. The content of the Japanese description is more accurately described as follows.

[0019] Process (a): forming a lower shield film 1, a lower gap film 2, a magnetoresistive film 3 and domain control layers 4. The lower shield film 1 is made of NiFe. The lower gap film 2 is an insulating film made of alumina, for example. The magnetoresistive film 3 is a multilayered structure consisting of NiFe/Cu/NiFe/FeMn/Cr. The domain control layers 4 are made of CoCrPt.

[0021] Process (c): etching the lead layer 5 into a desired shape. The etching process employs a reactive ion etching (RIE) using SF₆ gas. A resist pattern 6 serves as a mask. A helicon-type plasma etching equipment is employed.


In Yoshida et al., the magnetoresistive film 3 is formed on the surface of the lower gap layer 2, as shown in Figs. 1 and 2. The lower gap layer 2 does not at all contact the side surface of the magnetoresistive film 3. Thus, the side surface of the magnetoresistive film 3 might be exposed when the etching process is effected. Indeed, a chemical reaction should occur between the etching gas and the magnetoresistive film, a

problem addressed and solved by the present invention. Accordingly, withdrawal of this rejection is respectfully requested.

For the foregoing reasons, applicants believe that this case is in condition for allowance, which is respectfully requested. The examiner should call applicants' attorney if an interview would expedite prosecution.

Respectfully submitted,

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